

Illinois Environmental Protection Agency  
Bureau of Air, Permit Section  
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Project Summary  
For a Construction Permit Application  
From Bunge North America, Inc.  
For New Boilers and Alternative Service for Rail Loadout  
For its Danville Facility

Site Identification No.: 183020ABT  
Application No.: 10050056  
Date Received: May 27, 2010

Schedule

Public Comment Period Begins: October 23, 2010  
Public Comment Period Closes: November 22, 2010

Illinois EPA Contacts

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## **I. INTRODUCTION**

Bunge North America, Inc. (Bunge) has applied for a construction permit for its grain processing facility in Danville to address changes in the operations at the plant. The application addresses installation of two boilers to replace two boilers at the plant that are too big for current needs. The application also addresses use of existing Rail Loadout #1 for handling hominy and grain, rather than soybean meal. These changes require a construction permit from the Illinois EPA because they would involve emissions units at the plant.

## **II. PROJECT DESCRIPTION**

Bunge currently processes corn at its Danville plant by dry milling to produce various products including corn meal, corn flour, and grits or hominy. It previously also operated facilities at the plant, which were recently shut down, to extract vegetable oil from soybeans and corn germ. Bunge also operates its grain handling facility for the receipt, storage and loadout of grain and oil seeds.

Bunge is proposing to install two boilers to replace the existing coal-fired boiler and an existing backup boiler at the plant. The existing boilers, which are much larger than the new boilers, are no longer practical to operate as Bunge has shut down the corn and soybean oil extraction operations at the plant. This has resulted in substantial reductions in the plant's steam and electricity needs, as well as the plant's emissions.

The new boilers will fire natural gas as their primary fuel and propane, distillate fuel oil, and vegetable oil as secondary fuels. The two boilers will not be operated simultaneously except during periods of transition between the boilers. These boilers will be relocated from other facilities owned by Bunge.

The principal air contaminants emitted from the proposed boilers would be nitrogen oxide (NO<sub>x</sub>), carbon monoxide (CO), and sulfur dioxide (SO<sub>2</sub>). NO<sub>x</sub> is formed thermally by combination of oxygen and nitrogen in the air at the temperatures at which fuel is burned in a boiler. Factors affecting NO<sub>x</sub> formation from a boiler include boiler design, boiler load, and fuel type. The NO<sub>x</sub> emissions from the proposed boilers will be controlled with low-NO<sub>x</sub> burners. Low-NO<sub>x</sub> combustors lower NO<sub>x</sub> formation by controlling flame turbulence and staging the mixing of fuel and combustion air. CO is formed by the incomplete combustion of fuel. CO is associated with most combustion processes and is found in measurable amounts in boiler exhaust. CO emissions are controlled by providing adequate fuel residence time and high temperature in combustion zone to ensure complete combustion. SO<sub>2</sub> emissions, which would be associated mainly with use of liquid fuel, are addressed by the low sulfur content of the fuel.

Bunge is also proposing to use existing rail loadout #1 to handle grain and hominy (grits) from the dry corn mill. This change in operation of the rail loadout, which formerly handled soybean meal, is a consequence of the shutdown of the soybean extraction operations. The rail loadout operation is a source of particulate emissions, which will continue to be controlled by the existing dust capture system and a fabric filter or baghouse.

### **III. PROJECT EMISSIONS**

The potential annual emissions from the new boilers, based on the draft permit, would be 39.9 tons of NO<sub>x</sub>, 65.4 tons of CO, 6.5 tons of PM, 2.4 tons of VOM and 2.3 tons of SO<sub>2</sub>. Actual annual emissions of the boiler would be less than these limits to the extent that the primary boiler does not operate at its capacity and both boilers generally would not be operated simultaneously. Overall, there would be a decrease in actual emissions of the plant if one were to also consider the reductions in emissions from shutting down the existing boilers.<sup>1</sup>

The change in service of the Rail Loadout #1 will also not be accompanied by a significant increase in particulate matter emissions. (See Attachment 1 of the draft permit.) As with the boilers, there would be an overall decrease in actual emissions of particulate matter from the plant if one were to also consider the reductions in emissions from shutting down the corn oil and soybean oil extraction plants.

### **IV. APPLICABLE EMISSION STANDARDS**

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The proposed boilers will readily comply with the applicable state standards (35 Ill. Adm. Code: Subtitle B).

The backup boiler is also subject to the federal New Source Performance Standards (NSPS), 40 CFR 60 Subpart Dc, for Small Industrial-Commercial-Institutional Steam Generating Units. This standard addresses SO<sub>2</sub> emission from the boiler while firing liquid fuel by limiting it to 0.5 lb/mmBtu or burning fuel oil that has maximum sulfur content of 0.5 percent by weight.

As the rail loadout would now handle grain, it will be subject to New Source Performance Standards (NSPS) for Grain Elevators, 40 CFR 60, Subpart DD, when grain is being handled. This standard addresses particulate matter (PM) emissions from the rail loadout process to be less than 0.01 gr/dscf and opacity to be 0 percent. The NSPS also addresses opacity of the fugitive emissions of the rail loadout and associated grain handling operations to be no more than 5 percent and 0 percent, respectively.

The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement. The project should readily comply with the applicable standards.

### **V. APPLICABLE OF PREVENTION OF SIGNIFICANT DETERIORATION RULES**

This project is not considered a major project under the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. This is because the potential emissions from the proposed boilers, as addressed by the permit, and the increase in emissions from the rail loadout #1, would be less than significant. In particular, the emission increase

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<sup>1</sup> In its application, Bunge indicates that the typical annual emissions of the two existing boilers, one of which was fired with coal, have been approximately 100 tons of NO<sub>x</sub>, 80 tons of CO and 640 tons of SO<sub>2</sub>.

thresholds for PSD, i.e., NO<sub>x</sub>, SO<sub>2</sub> and VOM are limited to less than 40 tons/year; CO emissions are limited to less than 100 tons/year and PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions are limited to less than 25/15/10 tons/year.

## **VI. DRAFT PERMIT**

The conditions of the draft permit for the project contain limitations and requirements for the boilers and rail loadout #1 to help assure that the project complies with applicable regulatory requirements.

The draft permit includes enforceable limits on emissions and operation for the boilers and the rail loadout to assure that project remains below the levels at which it would be considered major for PSD. In addition to limiting annual emissions, the permit also includes limits on short term emissions, limitation on the capacity of the boilers and usage restrictions on liquid fuels for the boilers. The permit also generally requires that good air pollution control practice be used to minimize emissions.

The permit also establishes appropriate compliance procedures for the boilers and the rail loadout, including requirements for emission testing, monitoring, recordkeeping, and reporting. These measures are being imposed to assure that the emissions of the boilers and the rail loadout are accurately tracked to confirm compliance with the applicable short-term standards and annual emission limits.

## **VII. REQUEST FOR COMMENTS**

It is the Illinois EPA's preliminary determination that Bunge's application meets applicable state and federal requirements. The Illinois EPA is therefore proposing to issue a permit for the proposed project.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions of the draft permit.